Patent claims:

1. A method for operating a refrigerating installation, characterized in that stable conditions in the controlling and refrigerating circuit (and consequently highly efficient evaporation) are achieved by keeping the temperature of the refrigerant liquid upstream of the injection valve (A) constant.

2. The method for operating a refrigerating installation as claimed in claim 1, characterized in that stable conditions in the controlling and refrigerating circuit (and consequently a highly efficient evaporation) are achieved by keeping the suction vapor temperature upstream of the condenser (B) constant.

3. The method for operating a refrigerating installation as claimed in either of claims 1-2, characterized in that the refrigerant level in the heat exchanger (1/2), where the liquid refrigerant is completely evaporated, is defined and controlled by a level control (7) at the evaporator (1), IHE (internal heat exchanger) (2) or the two-stage evaporator (TSE) (first and/or second stage) (1 + 2) or suitable reference value, such as for example from the accumulator, whereby the degree of filling of the evaporator with liquid refrigerant, and as a result the suction vapor temperature (B), is defined (and consequently highly efficient evaporation is achieved).

4. The method for operating a refrigerating installation as claimed in one of claims 1-3, characterized in that the refrigerant level where the liquid refrigerant is completely evaporated, is defined and controlled by a pressure difference

detection (7) at the evaporator (1), IHE (internal heat exchanger) or the two-stage evaporator (TSE) (first and/or second stage), whereby the degree of filling of the evaporator with liquid refrigerant, and as a result the suction vapor temperature, is defined.

5. The method for operating a refrigerating installation according to one of claims 1-4, characterized in that the suction vapor temperatures (B) are limited and kept constant by limiting the refrigerant liquid temperature (F) into the IHE (2) or the second stage of the TSE (2) by an external supercooler (3) in cases of high refrigerant condensation outlet temperatures.

6. The method for operating a refrigerating installation as claimed in one of claims 1-5, characterized in that, by bypassing a partial mass flow of the liquid refrigerant (9) (E) of the IHE (2) or the second stage of the TSE (2), controlled on the basis of the suction vapor temperature (B), the latter is kept constant.

7. The method for operating a refrigerating installation as claimed in one of claims 1-6, characterized in that, by bypassing a partial mass flow of the suction vapor (12) (G) of the IHE (2) or the second stage of the TSE (2), controlled on the basis of the suction vapor temperature (B), the latter is kept constant.

8. The method for operating a refrigerating installation according to one of claims 1-7, characterized in that the suction vapor temperature (B) is controlled and kept constant by further measures, such as additional heat exchanger in the suction line.

9. The method for operating a refrigerating installation as claimed in one of claims 1-8, characterized in that the suction vapor temperature (B) is controlled and kept constant by further measures, such as an additional storage mass and resultant inertia in the suction line.

10. The method for operating a refrigerating installation as claimed in one of claims 1-9, characterized in that the refrigerant liquid temperature upstream of the injection valve (A) is controlled and kept constant by measures such as additional storage mass and resultant inertia in the liquid line (13).

11. The method for operating a refrigerating installation as claimed in one of claims 1-10, characterized in that keeping the temperature of the refrigerant liquid upstream of the injection valve (A) constant is achieved by measures such as the use of a heat exchanger (4) between the refrigerant liquid line and, for example, the secondary medium flow line (or other media with a suitable temperature level).

12. The method for operating a refrigerating installation as claimed in one of claims 1-11, characterized in that, by measures such as the use of a heat exchanger (4) between the refrigerant liquid line and, for example, the secondary medium flow line (or other media with a suitable temperature level), the temperature of the refrigerant liquid upstream of the injection valve (A) is controlled and kept constant at such a low level that the beginning of the evaporation process in the evaporator can be precisely defined and set and the latter can be started with solely

refrigerant liquid or with a refrigerant liquid/vapor mixture.

13. The method for operating a refrigerating installation as claimed in one of claims 1-12, characterized in that keeping the temperature of the refrigerant liquid upstream of the injection valve (A) constant is achieved by measures such as the use of a valve (9) between the refrigerant liquid line and the IHE (2) or the second stage of the TSE (2).

14. The method for operating a refrigerating installation as claimed in one of claims 1-13, characterized in that the use of one of the measures 1-13 alone or in combination with one or more or all of the measures (1-13) leads to extremely stable operation of the refrigerating installation (and consequently highly efficient evaporation).

15. The method for operating a refrigerating installation as claimed in one of claims 1-14, characterized in that minimal temperature differences between the medium inlet and outlet temperatures (C/D) and between medium inlet and outlet temperatures in relation to the respective evaporation temperatures (C/D in relation to to) can be achieved by the use of one of the measures 1-14 alone or in combination with one or more or all of the measures (1-14), especially with the use of a TSE (1 + 2).

16. The method for operating a refrigerating installation as claimed in one of claims 1-15, characterized in that our stable refrigerating systems with less or no feedback and hunting effects can be produced and operated (and thereby

highly efficient evaporation obtained) by the use of one of the measures 1-15 alone or in combination with one or more or all of the measures (1-15).

17. The method for operating a refrigerating installation as claimed in one of claims 1-16, characterized in that the stable control and stabilized refrigerating systems can be further stabilized, and the refrigerating systems can thus be operated with still less or no feedback and hunting effects, by the use of one of the measures 1-16 alone or in combination with one or more or all of the measures (1-16) by controlling and stabilizing the high and suction pressures.

18. The method for operating a refrigerating installation as claimed in one of claims 1-17, characterized in that considerable efficiency improvements, and consequently energy and cost savings, can be achieved by the use of one of the measures 1-17 alone or in combination with one or more or all of the measures (1-17).

19. The method for operating a refrigerating installation as claimed in one of claims 1-18, characterized in that the lifetime of the components used is considerably prolonged by significantly fewer switching cycles and fewer temperature and pressure fluctuations, by the use of one of the measures 1-18 alone or in combination with one or more or all of the measures (1-18).

20. The method for operating a refrigerating installation as claimed in one of claims 1-19, characterized in that the mass flow is on the refrigerating side for transmitting a specific refrigerating output Qo can be reduced to a minimum, which has the consequence of using smaller

condensers, evaporators, apparatuses, valves, lines, etc., by the use of one of the measures 1-19 alone or in combination with one or more or all of the measures (1-19).

21. The method for operating a refrigerating installation as claimed in one of claims 1-20, characterized in that the use of one of the measures 1-20 alone or in combination with one or more or all of the measures (1-20) means that it is irrelevant whether one or more evaporators, condensers, valves, heat exchangers, etc. is used, and in whatever form and combination they are used.